TITLE: VEHICULAR GUIDANCE SYSTEM HAVING
COMPENSATION FOR VARIATIONS IN
GROUND ELEVATION
INVENTOR: SHUFENG HAN, et. al.
DOCKET #: 16569 /deb, mah

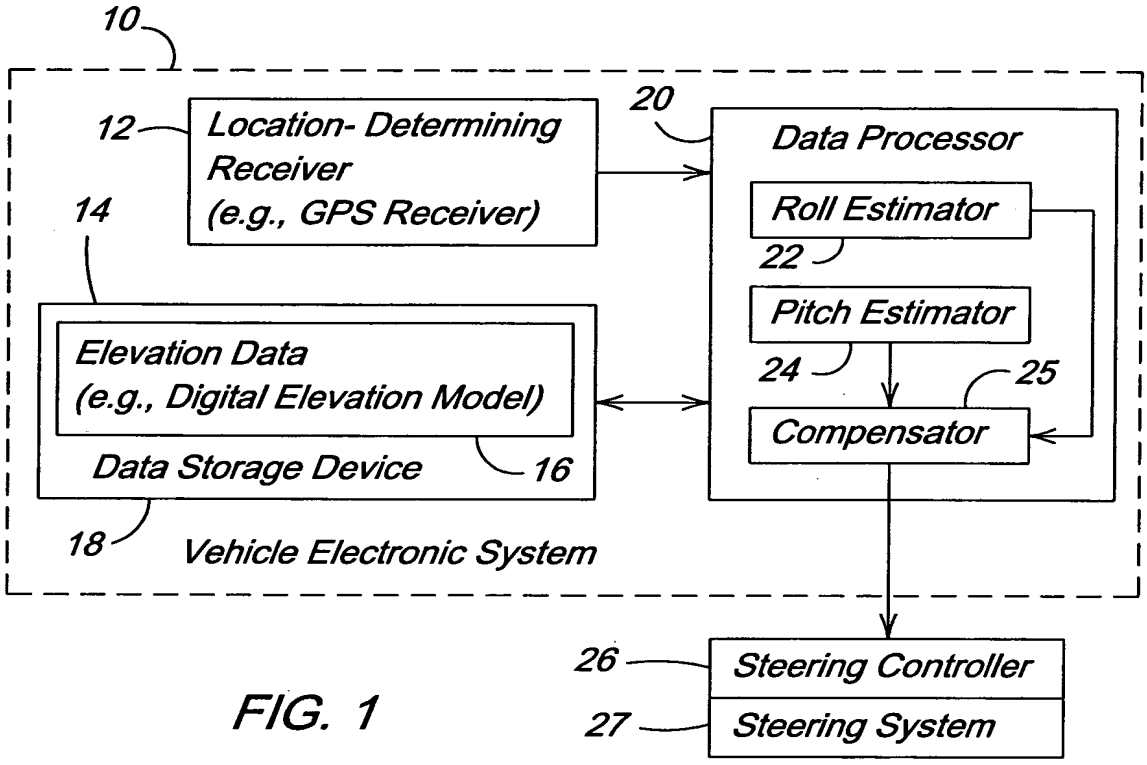

FIG. 1

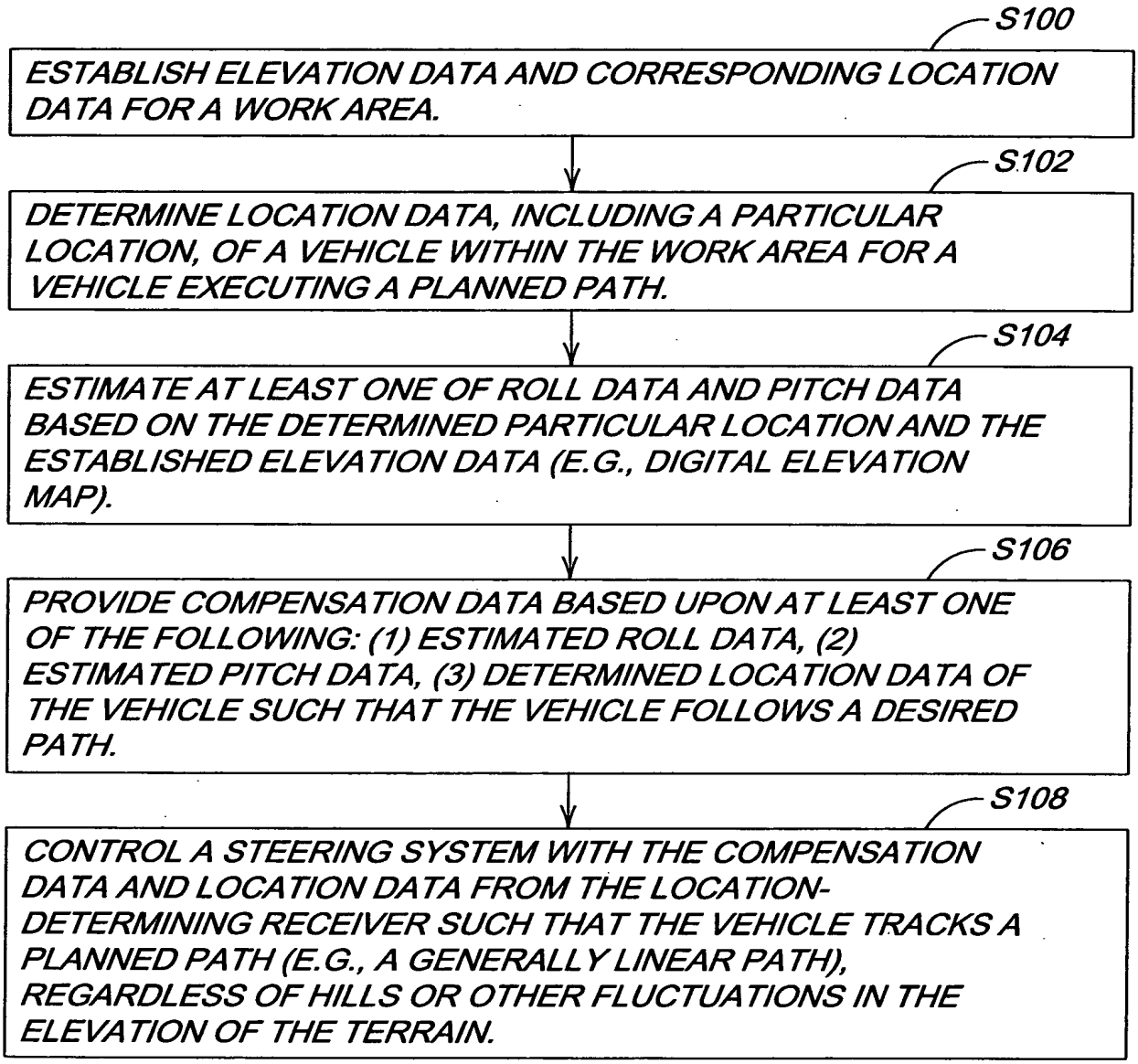
S100
ESTABLISH ELEVATION DATA AND CORRESPONDING LOCATION DATA FOR A WORK AREA.
S102
DETERMINE LOCATION DATA, INCLUDING A PARTICULAR LOCATION, OF A VEHICLE WITHIN THE WORK AREA FOR A VEHICLE EXECUTING A PLANNED PATH.
S104
ESTIMATE AT LEAST ONE OF ROLL DATA AND PITCH DATA BASED ON THE DETERMINED PARTICULAR LOCATION AND THE ESTABLISHED ELEVATION DATA (E.G., DIGITAL ELEVATION MAP).
S106
PROVIDE COMPENSATION DATA BASED UPON AT LEAST ONE OF THE FOLLOWING: (1) ESTIMATED ROLL DATA, (2) ESTIMATED PITCH DATA, (3) DETERMINED LOCATION DATA OF THE VEHICLE SUCH THAT THE VEHICLE FOLLOWS A DESIRED PATH.
S108
CONTROL A STEERING SYSTEM WITH THE COMPENSATION DATA AND LOCATION DATA FROM THE LOCATION-DETERMINING RECEIVER SUCH THAT THE VEHICLE TRACKS A PLANNED PATH (E.G., A GENERALLY LINEAR PATH), REGARDLESS OF HILLS OR OTHER FLUCTUATIONS IN THE ELEVATION OF THE TERRAIN.

FIG. 2

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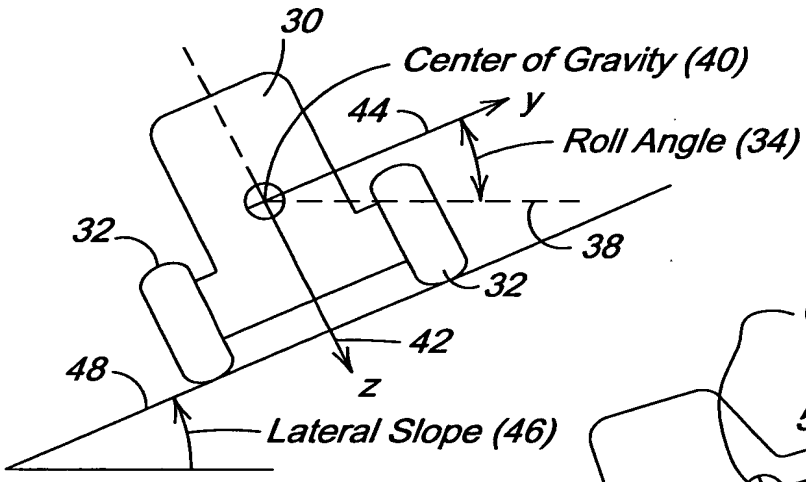

FIG. 3

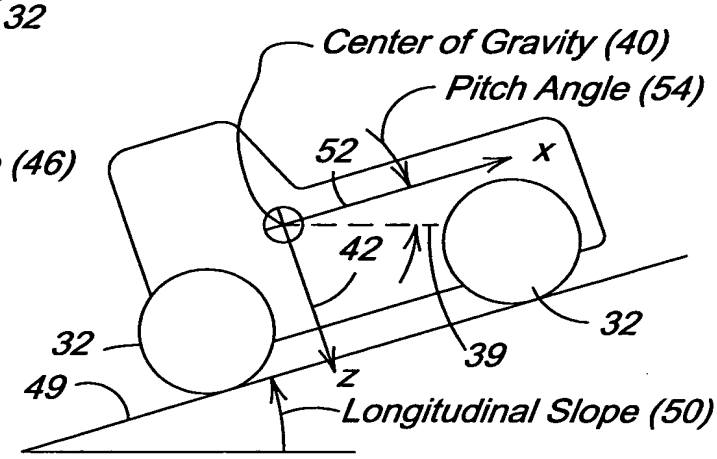

FIG. 4

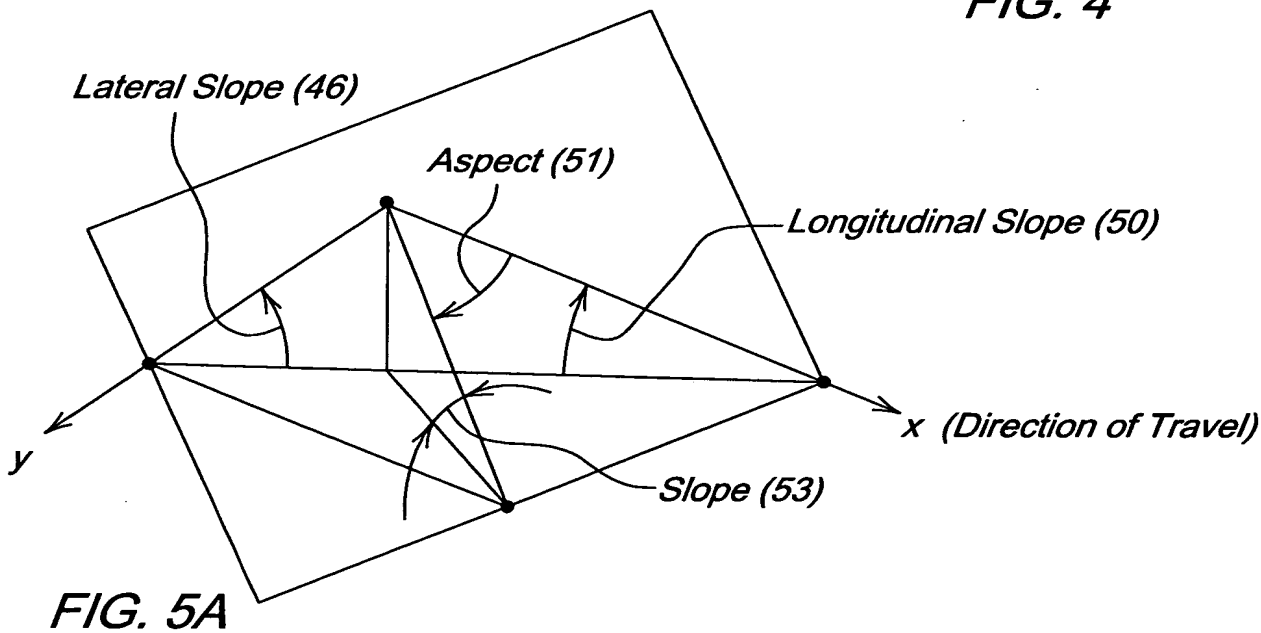

FIG. 5A

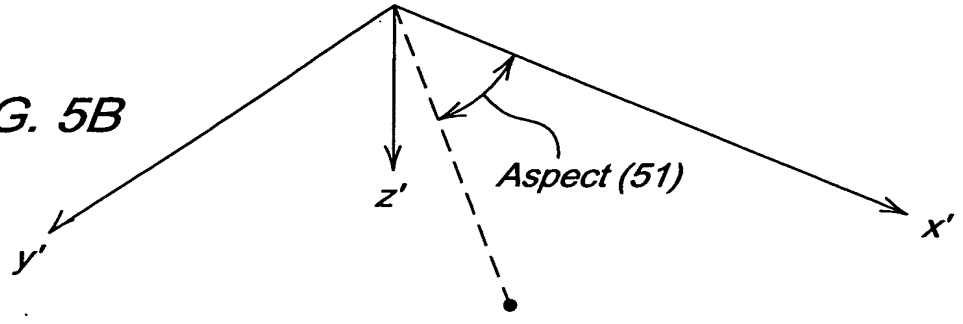

FIG. 5B

FIG. 6

E 1, 1 L 1, 1	E 1, 2 L 1, 2	E 1, 3 L 1, 3	E 1, 4 L 1, 4	E 1, 5 L 1, 5
E 2, 1 L 2, 1	E 2, 2 L 2, 2	E 2, 3 L 2, 3	E 2, 4 L 2, 4	E 2, 5 L 2, 5
E 3, 1 L 3, 1	E 3, 2 L 3, 2	E 3, 3 L 3, 3	E 3, 4 L 3, 4	E 3, 5 L 3, 5
E 4, 1 L 4, 1	E 4, 2 L 4, 2	E 4, 3 L 4, 3	E 4, 4 L 4, 4	E 4, 5 L 4, 5
E 5, 1 L 5, 1	E 5, 2 L 5, 2	E 5, 3 L 5, 3	E 5, 4 L 5, 4	E 5, 5 L 5, 5

Elevation Data (E) vs. Location Data (L)

FIG. 7

E 1, 1 L 1, 1 S 1, 1 A 1, 1	E 1, 2 L 1, 2 S 1, 2 A 1, 2	E 1, 3 L 1, 3 S 1, 3 A 1, 3	E 1, 4 L 1, 4 S 1, 4 A 1, 4	E 1, 5 L 1, 5 S 1, 5 A 1, 5	E 1, 6 L 1, 6 S 1, 6 A 1, 6
E 2, 1 L 2, 1 S 2, 1 A 2, 1	E 2, 2 L 2, 2 S 2, 2 A 2, 2	E 2, 3 L 2, 3 S 2, 3 A 2, 3	E 2, 4 L 2, 4 S 2, 4 A 2, 4	E 2, 5 L 2, 5 S 2, 5 A 2, 5	E 2, 6 L 2, 6 S 2, 6 A 2, 6
E 3, 1 L 3, 1 S 3, 1 A 3, 1	E 3, 2 L 3, 2 S 3, 2 A 3, 2	E 3, 3 L 3, 3 S 3, 3 A 3, 3	E 3, 4 L 3, 4 S 3, 4 A 3, 4	E 3, 5 L 3, 5 S 3, 5 A 3, 5	E 3, 6 L 3, 6 S 3, 6 A 3, 6
E 4, 1 L 4, 1 S 4, 1 A 4, 1	E 4, 2 L 4, 2 S 4, 2 A 4, 2	E 4, 3 L 4, 3 S 4, 3 A 4, 3	E 4, 4 L 4, 4 S 4, 4 A 4, 4	E 4, 5 L 4, 5 S 4, 5 A 4, 5	E 4, 6 L 4, 6 S 4, 6 A 4, 6

Elevation Data, Slope Data and Aspect Data
vs. Location Data